FAA
Aviation Safety

EMERGENCY AIRWORTHINESS DIRECTIVE
www.faa.gov/aircraft/safety/alerts/

DATE: February 22, 2021
AD #: 2021-05-52

Emergency Airworthiness Directive (AD) 2021-05-52 is sent to owners and operators of certain Bell Textron Canada Limited (Bell) Model 505 helicopters.

Background

This emergency AD was prompted by a report of a cracked pilot collective stick and grip assembly (pilot collective stick) that was discovered during a pre-flight check of the flight controls. This emergency AD requires, before further flight, visually inspecting the pilot collective stick for a crack. If no crack is found during the visual inspection, performing a fluorescent penetrant inspection (FPI) for a crack is required. Removing from service any cracked pilot collective stick is required before further flight. This emergency AD also requires reporting certain information to Bell and prohibits installing any pilot collective stick on any helicopter unless the inspection requirements have been accomplished. The unsafe condition, if not addressed, could result in failure of the pilot collective stick and subsequent loss of control of the helicopter.

Transport Canada, which is the aviation authority for Canada, has issued Transport Canada Emergency AD CF-2021-05, dated February 21, 2021, to correct an unsafe condition for Bell Model 505 helicopters, serial numbers 65011 and subsequent. Transport Canada advises of a report that a pilot collective stick cracked above the cabin floor at the junction with the collective jackshaft. This finding occurred prior to engine start during the pilot pre-flight check of flight controls for travel. The exact cause of the crack is still under investigation; due to the potential for similar failure on other Bell Model 505 helicopters, Transport Canada advises that a one-time inspection per Bell's service information is required to detect cracks that may lead to failure of the pilot collective stick and subsequent loss of control of the helicopter.

Accordingly, the Transport Canada AD requires a one-time visual inspection and as applicable, an FPI of the pilot collective stick to detect cracking. If the pilot collective stick is found to be unserviceable, the Transport Canada AD requires replacing the collective stick with a serviceable part prior to further flight. Transport Canada advises that a serviceable collective stick is a new collective stick or a collective stick with no crack found during the visual inspection or FPI required by its AD. Transport Canada considers its AD an interim action and states that further AD action may follow.

FAA's Determination

This helicopter model has been approved by the aviation authority of Canada and is approved for operation in the United States. Pursuant to the FAA's bilateral agreement with Canada, Transport Canada, its technical representative, has notified the FAA of the unsafe condition described in its AD. The FAA is issuing this emergency AD after evaluating all known relevant information and determining that the unsafe condition described previously is likely to exist or develop on other helicopters of the same type design.

Related Service Information

The FAA reviewed Bell Alert Service Bulletin 505-21-20, dated February 20, 2021 (ASB 505-21-20). This service information provides instructions for a one-time inspection for cracks of the pilot collective stick and grip assembly part number M207-20M478-041/-043/-047 on Bell Model 505 helicopters, serial numbers 65011 and subsequent.

Emergency AD Requirements

This emergency AD requires, before further flight, removing the pilot collective stick from the jackshaft assembly and cleaning it as specified in ASB 505-21-20. This emergency AD also requires visually inspecting the complete circumference of the areas specified in ASB 505-21-20 for a crack. If the visual inspection does not reveal a crack, this emergency AD requires performing an FPI for a crack as specified in American Society for Testing and Materials (ASTM) E1417 or equivalent; this inspection is required in the areas specified in ASB 505-21-20. Removing from service any cracked pilot collective stick is required before further flight.

This emergency AD also requires, within 10 days after the discovery of any crack, reporting certain information to Bell. Finally, this emergency AD prohibits installing any pilot collective stick unless it has been inspected in accordance with the inspection requirements of this emergency AD.

Differences between This Emergency AD and the Transport Canada AD

This emergency AD requires an FPI if no crack is found during the visual inspection; the Transport Canada AD requires an FPI if a crack is found during the visual inspection or if a crack is suspected.

Interim Action

The FAA considers this emergency AD to be an interim action. The inspection reports that are required by this emergency AD will enable the FAA to obtain better insight into the cause of the cracking, and eventually develop final action to address the unsafe condition. Once final action has been identified, the FAA might consider further rulemaking.

Paperwork Reduction Act

A federal agency may not conduct or sponsor, and a person is not required to respond to, nor shall a person be subject to penalty for failure to comply with a collection of information subject to the requirements of the Paperwork Reduction Act unless that collection of information displays a current valid OMB Control Number. The OMB Control Number for this information collection is 2120-0056. Public reporting for this collection of information is estimated to be approximately 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. All responses to this collection of information are mandatory. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to: Information Collection Clearance Officer, Federal Aviation Administration, 10101 Hillwood Parkway, Fort Worth, TX 76177-1524.

Authority for this Rulemaking

Title 49 of the United States Code specifies the FAA's authority to issue rules on aviation safety. Subtitle I, Section 106, describes the authority of the FAA Administrator. Subtitle VII,

Aviation Programs, describes in more detail the scope of the Agency's authority.

The FAA is issuing this rulemaking under the authority described in Subtitle VII, Part A, Subpart III, Section 44701, General requirements. Under that section, Congress charges the FAA with promoting safe flight of civil aircraft in air commerce by prescribing regulations for practices, methods, and procedures the Administrator finds necessary for safety in air commerce. This regulation is within the scope of that authority because it addresses an unsafe condition that is likely to exist or develop on products identified in this rulemaking action.

Presentation of the Actual Airworthiness Directive

The FAA is issuing this emergency Airworthiness Directive (AD) under 49 U.S.C. Section 44701 according to the authority delegated to me by the Administrator.

2021-05-52 Bell Textron Canada Limited: Project Identifier MCAI-2021-00217-R.

(a) Effective Date

This emergency AD is effective upon receipt.

(b) Affected ADs

None.

(c) Applicability

This AD applies to Bell Textron Canada Limited (Bell) Model 505 helicopters, serial numbers 65011 and subsequent, certificated in any category.

(d) Subject

Joint Aircraft Service Component (JASC) Code: 6710, Main Rotor Control.

(e) Unsafe Condition

This AD was prompted by a report of a cracked pilot collective stick. The FAA is issuing this AD to detect a cracked pilot collective stick which, if not corrected, could result in failure of the pilot collective stick and subsequent loss of control of the helicopter.

(f) Compliance

Comply with this AD within the compliance times specified, unless already done.

(g) Required Actions

Before further flight after the effective date of this AD:

(1) Remove the pilot collective stick and grip assembly from the jackshaft assembly and clean the areas specified in Figure 2 of Bell Alert Service Bulletin 505-21-20, dated February 20, 2021 (ASB 505-21-20) with a clean cloth C-516C or equivalent moistened with dry cleaning solvent C-304 or equivalent.

(2) Using a 10x or higher power magnifying glass and a light source, inspect the complete circumference of the pilot collective stick and grip assembly for a crack in the areas specified in Figure 2 of ASB 505-21-20.

(i) If the visual inspection did not reveal a crack, perform a fluorescent penetrant inspection for a crack as specified in American Society for Testing and Materials (ASTM) E1417 or equivalent. Perform this inspection in the areas specified in Figure 2 of ASB 505-21-20.

(ii) Remove from service any cracked pilot collective stick and grip assembly.

(3) Within 10 days after the discovery of any crack, report the information specified in paragraph 5.a.1. of ASB 505-21-20 to Bell Product Support Engineering at productsupport@bellflight.com.

(4) As of the effective date of this AD, do not install any pilot collective stick and grip assembly on any helicopter unless it has been inspected in accordance with the inspection requirements of this AD.

(h) Special Flight Permits

A special flight permit to a maintenance facility may be granted provided that there are no passengers on-board.

(i) Alternative Methods of Compliance (AMOCs)

(1) The Manager, International Validation Branch, FAA, has the authority to approve AMOCs for this AD, if requested using the procedures found in 14 CFR 39.19. In accordance with 14 CFR 39.19, send your request to your principal inspector or local Flight Standards District Office, as appropriate. If sending information directly to the manager of the certification office, send it to the attention of the person identified in paragraph (j)(1) of this AD. Information may be emailed to: 9-AVS-AIR-730-AMOC@faa.gov.

(2) Before using any approved AMOC, notify your appropriate principal inspector, or lacking a principal inspector, the manager of the local flight standards district office/certificate holding district office.

(j) Related Information

(1) For more information about this AD, contact Hal Jensen, Aerospace Engineer, Compliance & Airworthiness Division, Operational Safety Branch, FAA National Headquarters, 950 L’Enfant Plaza N SW, Washington DC 20024; telephone 202-267-9167; email hal.jensen@faa.gov.

(2) For service information identified in this AD, contact Bell Textron Canada Limited, 12,800 Rue de l’Avenir, Mirabel, Quebec J7J1R4; telephone 450-437-2862 or 800-363-8023; fax 450-433-0272; or at https://www.bellcustomer.com. You may view this referenced service information at the FAA, Office of the Regional Counsel, Southwest Region, 10101 Hillwood Pkwy., Room 6N-321, Fort Worth, TX 76177. For information on the availability of this material at the FAA, call (817) 222-5110.

(3) The subject of this AD is addressed in Transport Canada Emergency AD No. CF-2021-05 dated February 21, 2021.

Issued on February 22, 2021.

Gaetano A. Sciortino, Deputy Director for Strategic Initiatives,
Compliance & Airworthiness Division,
Aircraft Certification Service.